The Journal of
Medical Microbiology

A JOURNAL OF THE PATHOLOGICAL SOCIETY
OF GREAT BRITAIN AND IRELAND

EDITED BY

B. I. Duerden (Chairman, Cardiff)
D. C. Old (Dundee) J. G. M. Hastings (Birmingham)

EDITORIAL BOARD

S. G. B. Amyes (Edinburgh)
R. A. Barnes (Cardiff)
M. J. Colston (London)
M. J. Corbel (Potters Bar)
F. R. Falkiner (Dublin)
G. L. French (London)
C. G. Gemmell (Glasgow)
D. Greenwood (Nottingham)
C. A. Hart (Liverpool)
H. Humphreys (Nottingham)
R. H. Leach (London)
D. M. Livermore (London)
A. C. McCartney (London)
T. W. MacFarlane (Glasgow)
H. McKenzie (Aberdeen)
D. M. MacLaren (Amsterdam)
J. T. Magee (Cardiff)
R. C. Matthews (Manchester)
R. Parton (Glasgow)
M. D. Richardson (Glasgow)
P. W. Ross (Edinburgh)
B. W. Senior (Dundee)
K. J. Towner (Nottingham)
P. J. Wilkinson (Nottingham)
R. J. Williams (Milan)
C. Wray (Weybridge)

INTERNATIONAL ADVISORY BOARD

E. J. C. Goldstein (Los Angeles, USA)
A. Linde (Stockholm, Sweden)
J. E. McGowan Jr (Atlanta, USA)
E. Nagy (Szeged, Hungary)
S. Nakamura (Kamazawa, Japan)
T. V. Riley (Perth, Australia)
V. O. Rotimi (Jeddah, Saudi Arabia)
S. C. Sanyal (Varanasi, India)
M. Struelens (Brussels, Belgium)

GERMAN SIMS WOODHEAD
Founder of the Journal of Pathology and Bacteriology

VOLUME FORTY

Churchill Livingstone

EDINBURGH LONDON MADRID MELBOURNE NEW YORK AND TOKYO
1994

Copyright © 1994 *The Pathological Society of Great Britain and Ireland.*

All rights reserved. Apart from fair dealing for the purposes of research or private study, or criticism or review, as permitted under the Copyright, Designs and Patents Act, 1988, *this publication may only be reproduced, stored or transmitted, in any form or by any means, with the prior permission in writing of the Publishers Churchill Livingstone, Robert Stevenson House,* 1–3 *Baxter's Place, Leith Walk, Edinburgh EH*1 3*AF, U.K., or in the case of reprographic reproduction in accordance with the terms of licences issued by the Copyright Licensing Agency Ltd,* 90 *Tottenham Court Road, London W*1*P* 9*HE, UK.*

Typeset, printed and bound in Great Britain by Cambridge University Press, Cambridge

CONTENTS

Volume 40. No. 1—January

EDITORIAL

Bacterial typing systems: the way ahead 1
Pitt, T. L.

REVIEW ARTICLE

***Escherichia coli* O157 infections in Scotland** 3
Sharp, J. C. M., Coia, J. E., Curnow, J. and Reilly, W. J.

A study of the aetiological agents of childhood diarrhoea in Lagos, Nigeria 10
Ogunsanya, T. I., Rotimi, V. O. and Adenuga, A.

Clonal lines of *Salmonella enterica* serotype Enteritidis documented by IS*200*-, ribo-, pulsed-field gel electrophoresis and RFLP typing 15
Olsen, J. E., Skov, Marianne N., Threlfall, E. J. and Brown, D. J.

Antibiotic-induced release of endotoxin from bacteria *in vitro* 23
Crosby, Heather A., Bion, J. F., Penn, C. W. and Elliott, T. S. J.

The use of gene probes, immunoassays and tissue culture for the detection of toxin in *Vibrio cholerae* non-O1 31
Said, Bengü, Scotland, Sylvia M. and Rowe, B.

Attachment of staphylococci to different plastic tubes *in vitro* 37
Espersen, F., Wurr, Merete, Corneliussen, Lotte, Høg, Anne-Lise, Rosdahl, Vibeke Thamdrup, Frimodt-Møller, N. and Skinhøj, P.

Activity of eight antibacterial agents of *Staphylococcus epidermidis* attached to Teflon catheters 43
de Arellano, E Ramirez, Pascual, A., Martinez-Martinez, L. and Perea, E. J.

The role of HSV-induced Fc- and C3b(i)-receptors in bacterial adherence 48
de Graaf-Miltenburg, Lia A. M., van Vliet, Karin E., ten Hagen, T. L. M., Verhoef, J. and van Strijp, J. A. G.

Adhesion to and invasion of human colon carcinoma Caco-2 cells by *Aeromonas* strains 55
Nishikawa, Y., Hase, A., Ogawasara, J., Scotland, S. M., Smith, H. R. and Kimura, T.

Outer membrane antigens of oral *Treponema* species 62
Tall, B. D. and Nauman, R. K.

Antigenic mimicry of *Clostridium chauvoei* flagella by polyclonal anti-idiotypic antibodies 70
Kijima-Tanaka, Mayumi, Tamura, Y., Suzuki, Shoko, Nagamine, N. and Nakamura, M.

Announcements 76

Books Received 76

Volume 40. No. 2—February

EDITORIAL

Lyme disease in the UK: epidemiology, clinical presentations and diagnosis 77
O'Connell, Susan

REVIEW ARTICLE

Virulence factors involved in the pathogenesis of bovine intramammary infection due to *Staphylococcus aureus* 79
Sutra, L. and Poutrel, B.

Presence of *eaeA* sequences in pathogenic and non-pathogenic *Escherichia coli* strains isolated from weaned rabbits 90
Leroy, Sabine M., Lesage, Marie-Claude, Chaslus-Dancla, Elisabeth and Lafont, J. P.

Adherence of non-enteropathogenic *Escherichia coli* to HeLa cells 95
Bouzari, S., Jafari, A., Farhoudi-Moghaddam, A. A., Shokouhi, F. and Parsi, M.

A comparison of three semi-selective media for the isolation of methicillin-resistant *Staphylococcus aureus* 98
Allen, Janet L., Cowan, M. E. and Cockroft, P. M.

Kinetics of appearance of intestinal lesions in mice mono-associated with a lethal or non-lethal strain of *Clostridium difficile* 102
Castex, Francoise, Jouvert, S., Bastide, M. and Corthier, G.

An appraisal of the virulence factors associated with streptococcal endocarditis 110
Manning, J. E., Hume, E. B. H., Hunter, N. and Knox, K. W.

An unclassified *Eubacterium* taxon in acute dento-alveolar abscess 115
Wade, W. G., Lewis, M. A. O., Cheeseman, Sarah L., Absi, E. G. and Bishop, Patricia A.

A mechanism of pathogenicity of "Streptococcus milleri group" in pulmonary infection: synergy with an anaerobe 118
Shinzaro, T. and Saito, A.

Synthesis of heat-shock proteins in mycelia and yeast forms of *Paracoccidioides brasiliensis* 124
Goldani, L. Z., Picard, Michele and Sugar, A. M.

Introduction of IL-1β, IL-6, TNF-α, GM-CSF and G-CSF in human macrophages by smooth transparent and smooth opaque colonial variants of *Mycobacterium avium* 129
Fattorini, L., Xiao, Y., Li, B., Santoro, C., Ippoliti, F. and Orefici, G.

Human infection in Tayside, Scotland due to *Salmonella* serotype Livingstone 134
Old, D. C., Porter-Boveri, M. and Munro, D. S.

Polymerase chain reaction-mediated DNA fingerprinting for epidemiological studies on *Campylobacter* spp. 141
Giesendorf, B. A. J., Goossens, H., Niesters, H. G. M., van Belkum, A., Koeken, A., Endtz, H. P., Stegeman, H. and Quint, W. G. V.

Differential binding capacity and internalisation of bacterial substrates as factors in growth rate of *Acanthamoeba* spp. 148
Bottone, E. J., Perez, A. A., Gordon, R. E. and Qureshi, M. N.

Announcement 155

Books Received 155

Volume 40. No. 3—March

EDITORIAL
Meningococcal typing 157
Maiden, M. C. J. and Feavers, I. M.

Support of *Paracoccidioides brasiliensis* multiplication by human monocytes or macrophages: inhibition by activated phagocytes 159
Moscardi-Bacchi, Maura, Brummer, E. and Stevens, D. A.

Pyrolysis typing of isolates from a recurrence of systemic cryptococcosis 165
Magee, J. T., Philpot, C., Yang, Jian and Hosein, I. K.

Rapid identification of species with the *Mycobacterium tuberculosis* complex by artificial neural network analysis of pyrolysis mass spectra 170
Freeman, R., Goodacre, R., Sisson, P. R., Magee, J. G., Ward, A. C. and Lightfoot, N. F.

Removal of LPS from a *Brucella* cytoplasmic fraction by affinity chromatography with an anti-LPS monoclonal antibody as immunosorbent 174
Goldbaum, F. A., Rubbi, C. P. and Fossati, C. A.

Growth inhibition of *Clostridium difficile* by intestinal flora of infant faeces in continuous flow culture 179
Yamamoto-Osaki, Takako, Kamiya, Shigeru, Sawamura, Sadaaki, Kai, Masanori and Ozawa, Atsushi

Cytotoxic and haemagglutinating activities of motile *Aeromonas* species 188
Majeed, K. N. and Macrae, I. C.

***Vibrio mimicus* with multiple toxin types isolated from human and environmental sources** 194
Ramamurthy, T., Albert, M. John, Huq, Anwarul, Colwell, Rita R., Takeda, Yoshifumi, Takeda, Tae, Shimada, Toshio, Mandal, B. K. and Nair, G. B.

Protection of mice against vaginal colonisation by *Mycoplasma pulmonis* 197
Taylor-Robinson, D. and Furr, P. M.

Identification of viridans streptococci associated with bacteraemia in neutropenic cancer patients 202
Beighton, D., Carr, A. D. and Oppenheim, Beryl A.

Cough production, leucocytosis and serology of rats infected intrabronchially with *Bordetella pertussis* 205
Hall, Elizabeth, Parton, R. and Wardlaw, A. C.

Multidrug resistance to antiseptics and disinfectants in coagulase-negative staphylococci 214
Leelaporn, Amornrut, Paulsen, I. T., Tennent, Jan M., Littlejohn, T. G. and Skurray, R. A.

Gentamicin resistance in clinical isolates of *Escherichia coli* encoded by genes of veterinary origin 221
Johnson, A. P., Burns, Louise, Woodford, N., Threlfall, E. J., Naidoo, Jay, Cooke, E. M. and George, R. C.

Volume 40. No. 4—April

EDITORIAL
Viral hazards of transfusion: new developments 227
Barbara, J. A. J.

Genetic relationships and virulence factors among classical enteropathogenic *Escherichia coli* serogroup O126 strains 229
Yam, Wing Cheong, Robins-Browne, R. M. and Lung, Maria Li

The effect of iron on the invasiveness of *Escherichia coli* carrying the *inv* gene of *Yersinia pseudotuberculosis* 236
Conte, Maria Pia, Longhi, Catia, Buonfiglio, V., Polidoro, M., Seganti, Lucilla and Valenti, Piera

Diagnosis of infections with Shiga-like toxin-producing *Escherichia coli* by use of enzyme-linked immunosorbent assays for Shiga-like toxins on cultured stool samples 241
Law, D., Hamour, A. A., Acheson, D. W. K., Panigrahi, H., Ganguli, Leela A. and Denning, D. W.

Influence of animal passage on haemolysis and enterotoxin production in *Vibrio cholerae* O1 biotype El Tor strains 246
Tikoo, Anjali, Singh, D. V. and Sanyal, S. C.

Effect of inoculum size on the in-vitro susceptibility to β-lactam antibiotics of *Moraxella catarrhalis* isolates of different β-lactamase types 252
Yeo, S. F. and Livermore, D. M.

Small-fragment restriction endonuclease analysis in epidemiological mapping of group A streptococci 256
Mylvaganam, H., Bjorvatn, B., Hofstad, T., Hjetland, R., Hoiby, E. Arne and Holm, S. E.

IgG subclass response and protection against challenge following immunisation of mice with various influenza A vaccines 261
Ben-Ahmeida, E. T. S., Potter, C. W., Gregoriadis, G., Adithan, C. and Jennings, R.

A particle counting immunoassay for the direct detection of *Clostridium difficile* serogroup specific antigen in faecal specimens 270
Avesani, V., Cambiaso, C., Guarin, J. L., Lick, A. and Delmée, M.

Differentiation of *Pseudomonas aeruginosa* strains by ribotyping: high discriminatory power by using a single restriction endonuclease 275
Grattard, Florence, Pozzetto, B., Ros, A. and Gaudin, Odette G.

Characterisation of the external surfaces of *Pseudomonas aeruginosa* isolated from human blood and respiratory tract 282
Misumi, H., Umeda, A., Eguchi, K., Okada, K., Sawae, Y., Niho, Y. and Amako, K.

The role of IgA determination by ELISA in the early serodiagnosis of *Mycoplasma pneumoniae* infection, in relation to IgG and μ-capture IgM methods 288
Granström, M., Holme, T., Sjögren, A. M., Örtqvist, A. and Kalin, M.

Diagnosis of Lyme borreliosis: non-specific serological reactions with *Borrelia burgdorferi* sonicate antigen caused by IgG2 antibodies 293
Seppälä, I. J. T., Kroneld, R., Schauman, K., Forsen, K.-O. and Lassenius, R.

Announcements 303

Books Received 303

Volume 40. No. 5—May

EDITORIAL

Chromosomally-mediated antibiotic resistance and virulence 305
Doss, S. A.

Responses to *Bordetella pertussis* mutant strains and to vaccination in the coughing rat model of pertussis 307
Parton, R., Hall, Elizabeth and Wardlaw, A. C.

Genetic heterogeneity of *Pseudomonas aeruginosa* clinical isolates revealed by esterase electrophoretic polymorphism and restriction fragment length polymorphism of the ribosomal RNA gene region 313
Picard, B., Denamur, E., Barakat, A., Elion, J. and Goullet, P.

Immunodominant antigens of *Streptococcus equisimilis* shared by other β-haemolytic streptococci 323
Cimolai, N. and Mah, D. G.

Cloning and sequencing the endocarditis immunodominant antigen of *Streptococcus sobrinus* strain MUCOB 263 330
Brooks, W. and Burnie, J. P.

Variants of Shiga-like toxin II constitute a major toxin component in *Escherichia coli* O157 strains from patients with haemolytic uraemic syndrome 338
Rüssmann, H., Schmidt, H., Heesemann, J., Caprioli, A. and Karch, H.

Coagulase deficiency in clinical isolates of *Staphylococcus aureus* involves both transcriptional and post-transcriptional defects 344
Vandenesch, F., Lebeau, Christine, Bes, Michèle, McDevitt, D., Greenland, T., Novick, R. P. and Etienne, J.

Anti-candida activity of murine bronchoalveolar lavage fluid 350
Samaranayake, L. P., Tobgi, R. S. and MacFarlane, T. W.

Detection of a wide range of medically important fungi by the polymerase chain reaction 358
Makimura, K., Murayama, Somay Y. and Yamaguchi, H.

Genetic characterisation of intestinal spirochaetes and their association with disease 365
Lee, J. I. and Hampson, D. J.

Announcements 372

Books Received 374

Erratum Volume 39 No. 4 October 1993 pp. 305–309. Lectin typing of methicillin-resistant *Staphylococcus aureus* from Singapore, England and Wales, and Denmark 374
Jarløv, J. O., Rosdahl, V. T., Yeo, M. and Marples, R. R.

Volume 40. No. 6—June

EDITORIAL

Glycopeptide resistance in gram-positive bacteria: from black and white to shades of grey 375
Woodford, N. and Johnson, A. P.

Retrospective study of 108 cases of botulism in Poitiers, France 379
Roblot, P., Roblot, F., Fauchère, J. L., Devilleger, A., Maréchaud, R., Breux, J. P., Grollier, G. and Becq-Giraudon, B.

Restriction endonuclease analysis of adenovirus isolates from sporadic and epidemic ocular infections: experience in a clinical laboratory 385
Mahafzah, A. and Landry, Marie L.

Nucleolar accumulation of Semliki Forest virus nucleocapsid C protein: influence of metabolic status, cytoskeleton and receptors 389
Jakob, R.

The role of neuraminidase in haemagglutination and adherence to colon WiDr cells by *Bacteroides fragilis* 393
Namavar, F., Van Der Bijl, M. W., Appelmelk, B. J., De Graaff, J. and MacLaren, D. M.

Humoral and cellular immune responses to the fimbriae of *Porphyromonas gingivalis* and their synthetic peptides 397
Ogawa, T., Ogo, H., Uchida, H. and Hamada, S.

Consecutive mutations leading to the emergence *in vivo* of imipenem resistance in a clinical strain of *Enterobacter aerogenes* 403
Tzouvelekis, L. S., Tzelepi, E., Kaufmann, M. E. and Mentis, A. F.

The diagnosis of delayed post-operative endophthalmltis by polymerase chain reaction of bacterial DNA in vitreous samples 408
Hykin, P. G., Tobal, K., McIntyre, G., Matheson, M. M., Towler, H. M. A. and Lightman, S. L.

A scanning electronmicroscopy investigation of the structure of colonies of different morphologies produced by phenotypic switching of *Candida albicans* 416
Radford, D. R., Challacombe, S. J. and Walter, J. D.

A comparison of immunomagnetic separation and direct culture for the isolation of verocytotoxin-producing *Escherichia coli* O157 from bovine faeces 424
Chapman, P. A., Wright, D. J. and Siddons, C. A.

Specific DNA probes to detect *Escherichia coli* strains producing cytotoxic necrotising factor type 1 or type 2 428
Oswald, E., Pohl, P., Jacquemin, E., Lintermans, P., Van Muylem, K., O'Brien, A. D. and Mainil, J.

Pre-formed urease activity of *Helicobacter pylori* as determined by a viable cell count technique—clinical implications 435
Xia, H. X., Keane, C. T. and O'Morain, C. A.

Announcements 440

Books Received 442

Index Subjects 443

Index Authors 447